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## **Editorial**

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# **Special Issue: 4<sup>th</sup> International Workshop on Space Radiation**

## **Research (IWSRR)**

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The goal of understanding the planets and stars provided a unifying perspective to international scientists such as Galileo Galilei, Johannes Kepler and Michail V.

Lomonosov who studied the nature of space leading to advances on Earth. Astronauts and cosmonauts from many diverse nations now routinely venture into space, often on joint missions, and share a common perspective of the Earth and Heavens from their unique vantage point. However, the length and destination, such as the moon or Mars, of space missions are currently constrained by the potentially detrimental health risks from space radiation. The reduction of uncertainties in risk projection models for cancer and other

late effects, and the development of effective mitigation measures to protect against galactic cosmic rays and solar energetic particles are active areas of scientific research [1]. The 4<sup>th</sup> International Workshop on Space Radiation Research (IWSRR) held June 5-9, 2006, which included the 17<sup>th</sup> Annual NASA Space Radiation Health Investigators Meeting, was a unique opportunity to bring leading researchers from all space bearing nations together to create a unifying perspective for realizing solutions to the problem of space radiation.

Space radiation research is by its nature an inter-disciplinary science, spanning several areas of biology, physics, and engineering [1]. The 4<sup>th</sup> IWSRR built on the success of previous meetings held in the cities of Arona in Italy [2], Nara in Japan [3], and Port Jefferson in the United States [4]. However the theme for the meeting, “From Stars to Stars” explored new boundaries since for the first time the meeting was held in two great cities, Moscow and St. Petersburg with a starlight journey by train connecting the cities at the half-way point of the meeting. The life of Michail V. Lomonosov (B. 1711, D. 1765) serves a fitting symbol for the meeting. Known for his observations of the atmosphere of Venus, he was a member of the faculty at the St. Petersburg Imperial Academy of Sciences, but later founded Moscow State University, and made inter-disciplinary contributions to several areas of science and literature [5].

This special issue of the journal “Radiation and Environmental Biophysics” contains 20 peer-reviewed papers contributed by leading space radiation researcher’s world-wide attending the 4<sup>th</sup> IWSRR. Manuscripts cover a broad range of topics ranging from

radiation environments and transport in shielding and planetary surfaces to new results in understanding the biological effects of protons and high-charge and energy (HZE) nuclei on the risk of cancer, and degenerative diseases such as central nervous system effects, heart disease, and cataracts. The issue provides a snapshot of the state-of-the-art of the research in this field, demonstrating both the important results gathered in the past few years with experiments at accelerators, and the need for more research to quantify the risk and develop countermeasures.

The Guest Editors extend a sincere note of gratitude to Dr. Vladislav Shurshakov, the Scientific Secretary to this challenging meeting held in two cities, and to Gail Pacetti, Denise O’Hehir, Carina Sarkisova, and Svetlana Sidorenko for helping with local and international arrangements. We also thank the Editors of the journal, Anna Friedl and Werner Rühm, for their tremendous work in organizing and editing this volume.

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